

State of Illinois
Department of Transportation

**CONSTRUCTION INSPECTOR'S CHECKLIST
FOR
PORTLAND CEMENT CONCRETE PAVEMENT**

This checklist has been prepared to provide the field inspector a summary of easy-to-read step-by-step requirements relative to the proper construction of PCC Pavement (Section 420). The following questions are based on information found in Standard and Supplemental Specifications, Highway Standards, Construction Manual and current policy memorandums and letters.

Have you checked the contract Special Provisions, Supplemental Specifications and plans to see if any modifications have been made to the requirements listed herein? _____

1. SUBBASE TRIMMING

Has the subbase been trimmed prior to paving? (420.05) _____

When forms are used to pave, is the trimming being done with a subgrade planer (1103.08) after the forms are set? (311.06) _____

When a slipform paver is used, is the trimming being done with a subgrade machine (1103.09) prior to paving? (311.06) _____

2. PAVING FORMS

If paving forms are used do they meet the following requirements:

Are the forms: metal, not less than 3 m (10 feet) in length, equipped with both pin locks and joint locks, within 2 mm ($\frac{1}{16}$ inch) along the length of its upper edge, within 6 mm ($\frac{1}{4}$ inch) along the length of its front face, and in sufficient supply to permit their remaining in place not less than 12 hours after concrete placement? (1103.05) _____

Is the height of form face not less than edge thickness of proposed pavement, the base width equal to or greater than the height, and are 3 steel pins being used to secure each section? (1103.05) (420.06) _____

Are the forms being set on a hard and true grade, built up in 10 mm ($\frac{1}{2}$ inch) max. lifts of granular material in low areas (without using wooden shims) set not less than required for at least one days paving in front of the paver, and cleaned and oiled prior to the placing of concrete? (420.06) _____

When wooden forms are allowed, are they full depth, smooth, free of warp, not less than 50 mm (2 inches) thick when used on tangent, and securely fastened to line and grade? (1103.05)

Are curved forms of metal or wood being used on curves of 30 m (100 foot) radius or less? (1103.05)

3. FORM ALIGNMENT

Is the contractor checking (eyeballing) the forms for line and grade and making necessary adjustments prior to concrete placement? (420.06)

4. TEMPLATE

Is the surface of the subbase being tested for crown and elevation by means of a template? (311.06)

5. SUBBASE THICKNESS TEST

After trimming, is the thickness of the subbase being checked by any method at every 75 m (250 ft) location or less? (Table 1 & 7, [PPG](#))

Are all these job control thickness tests being recorded and retained as part of the job records? (Table 1 & 7, [PPG](#)) (311.07)

6. DRAINAGE

Is the subgrade being kept drained during all operations? Are all berms of earth deposited adjacent to the grade being kept drained by cutting lateral ditches through the berms? (301.08)

7. LONGITUDINAL CONSTRUCTION JOINT

Are you marking the beginning and ending stations where adjacent curb, median, or pavement will necessitate the placement of epoxy coated deformed steel tie bars in the edge of the proposed pavement? (The keyway requirement has been eliminated) (420.10(b))

8. SUPERELEVATION STAKING

Are you examining the plan curve data for all curves to determine where to stake the beginning and ending stations for all superelevation transitions?

By giving the contractor these points and intermediate points, a smooth transition from crown to super can be constructed.

9. PLANT & MATERIALS APPROVAL

Has the plant where the concrete is to be produced been approved?
(1103.02) _____

Has the contractor notified you of his/her proposed sources of materials prior
to delivery? (106.01) _____

Has all material been inspected, tested and approved before incorporation in
the work? (106.03) _____

Is this project set up as Quality Control/Quality Assurance (QC/QA)? _____

If so, are you reviewing the latest version of the QC/QA documents for
information regarding quality control procedures by the contractor and quality
assurance by the department? _____

Most PCC paving projects will be QC/QA. The QC/QA requirements
will apply to both the PCC pavement and the CAM II Stabilized
subbase. Contact your Materials department for concrete testing
equipment and mixture design approval.

10. TEMPERATURE LIMITATIONS (1020.14(a))

Is the outside air temp in the shade at least 2°C (35 °F) and ascending
before allowing the contractor to start mixing and placement operations? _____

Are you discontinuing the contractor's operations when a descending air
temp reaches 5°C (40 °F)? _____

Is the temp of the concrete between 10°C (50 °F) and 32°C (90 °F) at the
time of placement? _____

11. MIXING CONCRETE (1020.11)

Is the contractor producing the concrete in conformance with one of the
following methods? Check each article for a review of requirements and
restrictions for each: _____

a. Stationary mixer. (1103.01(a)) & (1020.11(c)) _____

b. Transit mixed concrete. (1020.11(c)) _____

12. TRUCK REQUIREMENTS

Is all concrete which is mixed in a stationary mixer being deposited within 30
minutes when hauled in nonagitating trucks and within 60 minutes when
hauled in agitator trucks? (1020.11(d)(8)) _____

Is transit mixed concrete being delivered and deposited within 60 minutes from the time stamped on the ticket? (1020.11(d)(8)) _____

If the contractor plans to use previously placed pavement as a haul road, are you checking truck weights to assure compliance with maximum weights as permitted by state law? See Form [BT 753](#). (107.01) & (701.05(c)(6)) _____

13. **SEQUENCES OF FORM TYPE PAVING**

Is all of the required concrete finishing equipment on the job and in acceptable working condition? Are the following sequences for form type paving being properly followed:

- a. Placing concrete (420.07). As little rehandling as possible. If equipment used can cause segregation, is the concrete being unloaded into an approved spreading device? (1103.12) _____
- b. Strike-off (420.09). Is the concrete being struck full and to the approximate cross section of the pavement? _____
- c. Consolidation (420.11). Is one pass of an approved surface vibrator (minimum of 3500 VPM) or internal vibrator (1103.12) (minimum of 7000 VPM) being made? Are you checking the vibrator frequency at the start of each day with a contractor furnished reed tachometer? _____
- d. Screeding (420.11(a))
 - (1) Is the concrete being screeded by an approved finishing machine? (1103.13(b)) _____
or;
 - (2) (When breakdowns occur) Hand methods will be permitted to finish up deposited concrete? (420.11(a)(2)) _____
or;
 - (3) (When pavement width varies or is less than 3 m (10 ft) Vibrating screed may be used for strike-off and consolidation? (420.11(a)(3)) _____
- e. Longitudinal floating (420.11(b))
 - (1) Is the form riding mechanical float (1103.15) making 2 passes over all areas? (420.11(b)(1)) _____
or;
 - (2) Form riding finisher float suspended on rigid frame? (1103.14) (420.11(b)(2)) _____
or;

- (3) (In emergency or when specified), 3.5 m x 150 m (12 ft x 6 inches) hand operated longitudinal float (1103.17(e)) operated from form riding foot bridges? (1103.17(d)) (420.11(b)(3)) _____
- f. Straightedging (420.11(c)) - At least two 3 m (10 ft) long shoulder operated surface trueness testers. (1103.17(h)) _____
- g. Edging (420.11(d)) - At least two 6 mm ($\frac{1}{4}$ inch) radius edging tools. (1103.17(j)) _____
- h. Surface Texturing (420.11(e)) _____

14. **SEQUENCES OF SLIPFORM PAVING**

When the contractor uses this optional method for the construction of the pavement are the following sequences being properly followed:

- a. Is the formless paver (1103.16) capable of spreading, consolidating internally, screeding and float finishing the newly placed concrete in one pass to the required line and grade? (420.17) _____
- b. Are you checking the vibrator frequency (7000 VPM minimum) at the start of each day with a contractor furnished reed tachometer? _____
- c. Is the pavement being straightedged, edged and textured as required in the previous question? (420.11) _____
- d. Does the contractor have available at all times metal or wooden sideforms and burlap or curing paper for the protection of the pavement in case of rain? (420.17) _____
- e. Is the contractor immediately repairing all slumping edges in excess of 13 mm ($\frac{1}{2}$ inch)? (See 420.17(a) & (b) for repairing for excessive edge slump.) _____

15. **THICKNESS TEST**

Are you checking the thickness of the pavement at least at every 75 m (250 ft) location? (Table 3, [PPG](#)) (Before and after rod and level, before and after stringline, or direct probing measurements are all acceptable.) Record and retain in job records. (420.18) (407.10) _____

16. **AIR CONTENT (1020.08)**

Are you testing the concrete for air (5 - 8%) at least every 75 m (250 foot) of pavement? (Table 3, [PPG](#)) Record and retain in job records. _____

17. SLUMP (1020.07)

Are you testing the concrete for slump (20 mm to 40 mm) ($\frac{3}{4}$ to 1 $\frac{1}{2}$ inch) at least once each day? (Table 3, PPG) Record and retain in job records. _____

Note: A maximum slump limit up to 75 mm (3 inches) is allowed provided the mix is reportioned. (1020.05(f))

18. STRENGTH (701.05(c)(6))

Are test specimens being cast at the site of work at the following frequency: _____

- a. Modulus of Rupture (150 mm x 150 mm x 750 mm)
(6" x 6" x 30" beam) (Section 3C, Prop. Manual):

4 beams first day; 2 per day thereafter. (Table 3, PPG)

Break @ 3, 5, 7 and 14 days.

Strength requirement = 4.5 MPa (650 psi) (701.05(c)(6))

Report on Form LW 3, "Field Record Book of Modulus of Rupture Tests of Concrete Beams" _____

or;

- b. Compressive Strength (150 mm dia. x 300 mm cylinder)
(6" dia. x 12" cylinder). (Section 3D, Prop Manual)

Make 2 cylinders in lieu of each beam (Table 3, PPG)

Strength requirement = 24 MPa (3500 psi) (701.05(c)(6)) _____

19. SAWED LONGITUDINAL JOINT (420.10(a))

- a. Is the pavement being strengthened by 750 mm (30 inches) #6 tie bars at 750 mm (30 inch) centers at t/2 depth perpendicular to the joint? (Std. 420001) _____

- b. Is the longitudinal joint being sawed to a depth of t/3 of the pavement thickness in accordance with Article 420.10(a)? (Std. 420001) _____

20. TRANSVERSE EXPANSION JOINTS

Is the 75 mm (3 inches) preformed joint filler (Std. 420001) continuous from form to form and shaped to the subgrade or subbase? (420.10(c)) _____

21. TRANSVERSE CONTRACTION JOINTS

- a. Are the epoxy coated load transfer assemblies of the size and positioning as specified in Std. 420001 being pinned to the grade as shown on the Standard? (420.10(d)(e)(f)) _____
- b. Is a 70 mm (2 3/4 inch) or t/3 deep groove being sawed over each assembly 4 to 24 hours after concrete placement? (420.10(d)(f)) (Std. 420001) _____
- c. Are all joints being sealed with one of the materials as shown on Std. 420001 after the curing period and before opening to traffic? (420.14) _____

22. TRANSVERSE CONSTRUCTION JOINTS

- a. Is a transverse construction joint constructed when there is an interruption of more than 30 minutes in the concreting operations? (420.10(g)) _____
- b. When the pavement is constructed with pavement fabric reinforcement are you prohibiting the transverse construction joint from being located within 3.0 m (10 ft.) of a contraction joint? (420.10(g)) _____
- c. Are joints formed by means of a suitable header board conforming to the cross section of the pavement and drilled for the tie bars? (420.10(g)) _____

23. SURPLUS - DEFICIENCY DETERMINATION

Is a daily check being made on the yield of produced concrete? A deficiency computation is serious; it usually indicates thin pavement. _____

$$D \text{ or } S = \frac{\text{Difference between required volume \& volume used}}{\text{Required volume}} \times 100$$

Where - Required volume = $L_{\text{meter}} \times W_{\text{meter}} \times D_{\text{meter}}$ ($L' \times W' \times D' \times \frac{1}{27}$)

Used volume = Number of batches $\times m^3$ (cy)/batch

24. PAVEMENT STATIONING

Are stations being stamped in the pavement surface every 100 m (250 feet) at the location specified by your construction office? Are station equations being stamped where they occur? _____

25. CURING (1020.13(a))

Are the pavement surface and edges being cured for 3 days (1020.13(a)) by one of the following methods:

- a. Waterproof Paper Method. Covered as soon as possible with blankets of tear-free reinforced kraft paper (1022.03), with 300-mm (12-inch) laps, properly weighted? Has the pavement been wetted with a fine spray first? (1020.13(a)(1)) _____
- b. Polyethylene Sheeting Method. Covered as soon as possible with 30-m (100-ft) long sheets of white polyethylene (1022.04), with 300-mm (12-inch) laps, properly weighted? Has the pavement been wetted with a fine spray first? (1020.13(a)(2)) _____
- c. Wetted Burlap Method. Covered as soon as possible with 2 layers of wet burlap (1022.02), with 150 mm (6 inch) laps? Kept saturated by means of a mechanically operated sprinkling system or an impermeable covering? (Alternate; one burlap and one burlene (1022.05) blanket) (1020.13(a)(3)) _____
- d. Membrane Curing Method. As soon as water sheen has disappeared, are 2 separate applications, separated by at least one minute, of agitated Type III (white) curing compound (1022.01) being uniformly applied? 0.16 L/m² (One gallon/250 sf)/application? (1020.13(a)(4)) Not allowed between November 1 & April 15 (1020.13 Note 6). Not allowed if protective coat is to be applied. (1020.13(a)(4)) _____

26. PROTECTION

Is the contractor providing protection of the pavement from low temperatures as follows: (1020.13(c))

<u>Min. Temp. Forecast</u>	<u>Protection</u>	
-4°C - 0°C (25°F - 32° F) (or if drops below 0°C (32° F) during first 72 hours)	1 layer of poly & 1 layer burlap, or 2 layers of polyethylene, or 2 layers of waterproof paper	_____
Below -4°C (25°F)	150 mm (6 inches) of straw covered with 1 layer of poly or waterproof paper	_____

27. SURFACE VARIATIONS (420.12 & 407.09)

At the end of the curing period, are you profilographing or straightedging each wheel lane for surface variations? _____

Are all bumps being marked, ground down, and sprayed with protective coat?
(420.12) _____

28. **OPENING TO TRAFFIC**

Is the pavement being closed to traffic until:

- a. The curing and protection period has elapsed? (701.05(c)(6)) _____
- b. All joints have been sealed? (420.14) _____
- c. The required strength has been achieved by test specimen?
(701.05(c)(6)) _____

If the contractor wishes to open the pavement to traffic prior to the date of your first routine beam break, are additional specimens being cast and then allowed to cure out in the open the same as the pavement? (701.05(c)(6)) _____

29. **PROTECTIVE COAT**

- a. Is a protective surface treatment being applied when pavement is constructed after October 15, and will be opened to traffic prior to the following April 15; or when directed by the Engineer? (420.21) _____
- b. Are 2 coats at 11 m²/L (50 sy/gal)/coat being applied to 14 day old minimum pavement? Is air temperature above 10°C (50 °F)?
(420.21) _____

30. **FIELD RECORDS**

Are all tests, measurements, observations and computations required in the foregoing being maintained in a hard back field book? _____

31. **DOCUMENTATION OF FINAL CONTRACT QUANTITIES**

PORTLAND CEMENT CONCRETE PAVEMENT, m² (SY)
PAVEMENT FABRIC, m² (SY)
PROTECTIVE COAT, m² (SY)

- a. Measured Quantities: Computations based on measured lengths and measured variable width segments. (420.22(b)) Use plan width for all constant width pavement. (109.01) _____
- or:
- b. Contract Quantities: Jointly signed Form [BC 981](#) required.
(420.22(a)) (202.07(a)) _____

Revised to conform with the Standard Specifications for Road and Bridge Construction Adopted
January 1, 2002